CLAIMS

1. A method for searching a drug to a bioactive protein using a cell-free protein synthesis means with the use of a wheat embryo extract solution comprising at least steps 3) to 5) of the following steps:

1) synthesizing a gene comprising a gene encoding the bioactive protein, wherein the step is based on base sequence information of the bioactive protein gene,

2) synthesizing an mRNA from the gene synthesized in step 1),

3) synthesizing the bioactive protein using a cell-free protein synthesis system with the use of a wheat embryo extract solution, using the mRNA synthesized in step 2) as a translation template or the gene synthesized in step 1) as a transcription template,

4) determining the reactivity of a candidate drug to the bioactive protein by adding the candidate drug to the cell-free protein synthesis system with the use of a wheat embryo extract solution, and

5) screening a drug to the bioactive protein by using the reactivity as an indicator.

2. The method for searching a drug according to the claim 1, wherein the indicator of reactivity to the bioactive protein is based on the reactivity to bioactive protein's autodigestion.

3. The method for searching a drug according to the claim 1, wherein the indicator of reactivity to the bioactive protein is based on the reactivity to the bioactive protein's substrate recognition.

4. The method for searching a drug according to the claim 1, wherein the indicator of reactivity to the bioactive protein is based on the bioactive protein's autodigestion in a folding process, inhibition or termination of folding, or induction of misfolding.

5. The method for searching a drug according to the claim 1, wherein the reactivity of the candidate drug to the bioactive protein is selected from any one, two or more of the following:

1) a reaction of inhibiting or terminating a synthesis of the bioactive protein's mRNA in a transcription process,

2) a reaction of inhibiting and/or antagonizing autodigestion at one, two or more autodigestion site(s) in the bioactive protein,

3) a reaction of inhibiting and/or antagonizing the recognition of a substrate at one, two or more site(s) for recognizing a substrate in the bioactive protein,

4) a reaction of inhibiting or terminating the synthesis of the bioactive protein in a translation process,

5) a reaction of inhibiting or terminating the autodigestion or folding of the bioactive protein in a folding process, or a reaction of inducing misfolding,

6. The method for searching a drug according to any one of the claims 1 to 5, wherein the steps 3) to 5) or 2) to 5) of the claim 1 are conducted in a single reaction system.

7. The method for searching a drug according to any one of the claims 1 to 6, wherein the wheat embryo extract solution is a cell-free protein synthesis means with a wheat embryo extract from which an endosperm and a low molecular synthesis inhibitor are substantially removed.

8. The method for searching a drug according to any one of the claims 1 to 7, wherein the bioactive protein is a protein associated with pathogenic proliferation.

9. The method for searching a drug according to any one of the claims 1 to 8, wherein the bioactive protein is a protease.

10. The method for searching a drug according to any one of the claims 1 to 9, wherein the bioactive protein gene is a gene derived from any one of the following:

1) a double-stranded DNA virus, 2) a singled-stranded DNA virus, 3) a positive-stranded RNA virus, 4) a negative-stranded RNA virus, 5) a double-stranded RNA virus, 6) a retrovirus, and 7) a hepadnavirus.

11. The method for searching a drug according to any one of the claims 1 to 10, wherein the bioactive protein is any one of the following:
1) an RNA polymerase, 2) a DNA polymerase, 3) a helicase, 4) a coat protein, and 5) a capsid protein.

12. The method for searching a drug according to any one of the claims 1 to 11, wherein the bioactive protein gene is derived from SARS.

13. A drug provided by the method for searching a drug according to any one of the claims 1 to 12.

14. A reagent kit used in the method for searching a drug according to any one of the claims 1 to 12.

15. An oligonucleotide primer to amplify a SARS $3CL^{pro}$ protein-encoding DNA.

16. The oligonucleotide primer according to the claim 15, comprising any one of nucleotides represented by

SEQ.ID.Nos: 6-21.

17. A SARS $3CL^{pro}$ protein-encoding DNA synthesized by using the oligonucleotide primer according to the claim 15 or 16.

18. The SARS $3CL^{pro}$ protein-encoding DNA according to the claim 17, represented by SEQ.ID.No:1.

19. A SARS $3CL^{pro}$ protein synthesized using a cell-free system with the use of a wheat embryo extract solution, using the DNA according to the claim 17 or 18.

20. The SARS $3CL^{pro}$ protein according to the claim 19, sustaining a protease activity.